

What's the Method?

By Trista L. Pollard



Some of the best inventions happen by accident, like Toll House cookies. However, most inventions happen after many years of research. Scientists test and retest ideas hoping to solve **scientific** puzzles. Good scientists use a process called the **scientific method**.

² The scientific method is a series of problem solving steps that help scientists answer scientific questions. You also use the scientific method when you work on **experiments** in your classroom. Scientists use this method to prove a scientific question true or false. These questions usually are asked after scientists have made **observations**. An observation happens when you use your senses (i.e., sight, smell, hearing, etc.) to notice what is going on around you. For example, your mom packs cut apples wrapped in plastic wrap in your lunch everyday. You notice at lunch time that the apples are slightly brown. This is an observation.

³ After observing your brown apples, you ask yourself, "Why does this apple turn brown when it is cut?" This is your **scientific question**. You start to guess or think about possible reasons for your brown apple. The time has come for you to make a good guess or a **hypothesis** based on your observations. You predict that the apple turns brown because air or oxygen has touched your apple. To prove your hypothesis, you need to develop a **procedure** or plan to test your **prediction**.

⁴ Your plan is very simple. You decide to (1) cut an apple into four pieces, (2) put the apple into a bowl, and (3) let the bowl with the apple sit on your kitchen counter overnight. These three steps will allow you to see if oxygen causes cut apples to change color. When you wake up in the morning, you decide to look at your apple pieces. You are met with four brown apple pieces staring at you from the bowl. Now you are ready to **record** your **results**.

⁵ Scientists record their results either with pictures or with words. Pictures can be charts, diagrams, or graphs. Words are usually summaries or short paragraphs that explain what happened during your experiment. In this case, you may wish to mentally or in your mind record your results about your apple. You might also choose to share the results or **data** with your friends at the lunch table in school. You could also write a short paragraph about your experiment and give it to your teacher. However, before you record your results make sure you include a **conclusion**. This conclusion or statement tells the results of your experiment. Your conclusion is, "When apples are cut and oxygen makes contact with the apples, they turn brown." When the chemicals in the oxygen combine with the natural chemicals in the apple, a change or **reaction** occurs. This change makes the apples turn brown.

⁶ You are probably feeling good about your results and think that your scientific study is over. However, good scientists also ask more questions, record more observations, and offer more suggestions about the subject they are studying. You may ask, "Is there a way to prevent cut apples from turning brown when they are exposed to oxygen?" After researching your new question, you could offer suggestions to other mothers for the best way to wrap apple slices to prevent browning. Keep in mind, that whatever scientists investigate, they know that the scientific method is the key to unlocking scientific secrets.

Name _____



Date _____

What's the Method?

<p>1. A hypothesis is _____.</p> <p><input type="radio"/> (A) An experiment</p> <p><input type="radio"/> (B) A good guess based on observations</p> <p><input type="radio"/> (C) A result of an experiment</p> <p><input type="radio"/> (D) None of the above</p>	<p>2. The scientific method is one step scientists use to solve scientific problems.</p> <p><input type="radio"/> (A) False</p> <p><input type="radio"/> (B) True</p>
<p>3. What is an observation?</p> <p>_____</p> <p>_____</p>	<p>4. Which statement is not a prediction?</p> <p><input type="radio"/> (A) I think I will stay home tonight.</p> <p><input type="radio"/> (B) I think the balloon will pop when the chemicals react.</p> <p><input type="radio"/> (C) I think the salt will dissolve when I add water to the cup.</p> <p><input type="radio"/> (D) I think the wood will float when I put it into the water.</p>
<p>5. What is a conclusion?</p> <p>_____</p> <p>_____</p>	<p>6. After leaving the apple slices in the bowl on the counter, they turned brown.</p> <p><input type="radio"/> (A) False</p> <p><input type="radio"/> (B) True</p>
<p>7. Before the hypothesis was made, it was observed that _____.</p> <p><input type="radio"/> (A) The sliced apples had stayed the same color</p> <p><input type="radio"/> (B) The sliced apples had separated into more slices</p> <p><input type="radio"/> (C) The sliced apples turned red</p> <p><input type="radio"/> (D) The sliced apples had turned slightly brown</p>	<p>8. Scientists do not record their results after completing experiments.</p> <p><input type="radio"/> (A) False</p> <p><input type="radio"/> (B) True</p>